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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,138	12/03/2003	Kaushik Saha	852463.406	5322
38106 7590 01/26/2007 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVENUE, SUITE 5400 SEATTLE, WA 98104-7092			EXAMINER DO, CHAT C	
			ART UNIT 2193	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/727,138	SAHA ET AL.	
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/03/03; 05/03/04; 05/24/04.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/24/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because the abstract is written using the form and legal phraseology in line 3. Correction is required. See MPEP § 608.01(b).

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being obvious over Abel et al. (U.S. 5,991,787) in view of Jaber (U.S. 6,792,441).

Re claim 1, Abel et al. disclose in Figures 1-14 a linear scalable method for computing a Fast Fourier Transform (FFT) or Inverse Fast Fourier transform (IFFT) (e.g. abstract; Figures 7 and 11 wherein Figure 7 presents an IFFT and Figure 11 presents FFT) in a multiprocessing system using a decimation in time approach (e.g. abstract last line), comprising the steps of: computing first and second stages of $\log_2 N$ stages of an N-point FFT/IFFT as a single radix-4 butterfly operation (e.g. as Figures 4-6 wherein the first two stages of 3 stages of $N = 8$ can be replaced and computed by a single stage using radix-4 as seen in Figure 6) while implementing the remaining $(\log_2 N - 2)$ stages using radix-2 butterfly operations, wherein each radix-2 butterfly operation employs a single radix-2 butterfly computation loop without employing nested loops (e.g. the second stage in Figure 6 and Figure 7 with computation of 710). Abel et al. fail to disclose the distributing the butterfly operations in each stage such that each processor computes an equal number of complete butterfly operations thereby eliminating data interdependency in the stage. However, Jaber discloses in Figures 9-10 the distributing the butterfly operations in each stage such that each processor computes an equal number

of complete butterfly operations thereby eliminating data interdependency in the stage (e.g. abstract and col. 3 line 30-68 wherein the input data is breakdown in block corresponding to each processor for computing DFT as digital fourier transform).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the distributing the butterfly operations in each stage such that each processor computes an equal number of complete butterfly operations thereby eliminating data interdependency in the stage as seen in Jaber's invention into Abel et al.'s invention because it would enable to speed up the computation by computing in parallel and simultaneously (e.g. abstract).

Re claim 2, Abel et al. fail to disclose step of distributing butterfly operations is implemented by assigning to each processor of the multi-processor system respective addresses of memory locations corresponding to inputs and outputs required for each specific butterfly operation assigned to the processor. However, Jaber discloses in Figures 7-11 step of distributing butterfly operations is implemented by assigning to each processor of the multi-processor system respective addresses of memory locations corresponding to inputs and outputs required for each specific butterfly operation assigned to the processor (e.g. col. 7 lines 2-30). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add step of distributing butterfly operations is implemented by assigning to each processor of the multi-processor system respective addresses of memory locations corresponding to inputs and outputs required for each specific butterfly operation assigned to the processor as

seen in Jaber's invention because it would enable to speed up the computation by computing in parallel and simultaneously (e.g. abstract).

Re claim 3, it is a system claim of claim 1. Thus, claim 3 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 4, it is a system claim of claim 2. Thus, claim 4 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 5, it is a software product claim of claim 1. Thus, claim 5 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 6, it is a software product claim of claim 2. Thus, claim 6 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 6,061,705 to Hellberg discloses a power and area efficient fast fourier transform processor.

b. U.S. Patent No. 7,164,723 to Sunwoo discloses a modulation apparatus using mixed-radix fast fourier transform.

c. U.S. Patent No. 5,093,801 to White et al. disclose an arrayable modular FFT processor.

d. U.S. Patent Publication No. 2003/0041080 to Jaber discloses an address generator for fast fourier transform processor.

Art Unit: 2193

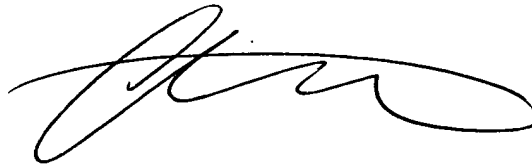
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2193

January 22, 2007

A handwritten signature in black ink, appearing to be 'Chat C. Do', written in a cursive style.